

## PUBLIC SAFETY

# Obsolete C. D. Plans

► CIVIL DEFENSE planners in most U. S. cities are preparing programs that may well be obsolete in two years, the time it takes to make them work.

Dr. Harold A. Knapp Jr., a physicist with the Navy Department's Operations Evaluation Group, has made an exhaustive study of the problem. He told SCIENCE SERVICE, after presenting a paper on the subject at the meeting of the Operations Research Society of America in Washington, that almost all cities, including Washington, are planning against the bombs Russia now has. In two or three years, however, enemy bombs may well be up to 50 times more powerful.

Dr. Knapp, who is also civil defense director of South Woodley, Va., a suburb of Washington, said that most of the population will be inadequately protected if the answer to the following questions are based on obsolete data:

What areas should be completely evacuated? How far from ground zero is it safe just to take cover, and what kind of cover? What are the dangers from radioactive dust and what kind of protection is most effective? What preparations should have top priority?

In Washington, for instance, civil defense preparations are based on the assumption that a bomb equivalent to 500,000 tons, or half a megaton, of TNT would be dropped, he said. Such a bomb would cause serious damage to houses up to a four-mile radius.

By late in 1957, however, it is estimated that Russia would be capable of delivering bombs in the 25-megaton range, 50 times more powerful, which would cause the

same sort of destruction in a 14-mile radius, he said.

Perhaps even more important is that the men who plan our cities' air raid strategy have no official information on the dangers of "fall-out," or radioactive dust. They are told only that "the danger depends on the prevailing winds."

But it is known that Japanese fishermen 72 miles from a test H-bomb explosion in the Pacific last March were hit by fall-out and one died.

Some estimates are that an area of 6,000 square miles might be affected by radioactive dust. If so, in the event of an air attack on Washington, Philadelphia might be in serious danger from fall-out.

Another important consideration in determining civil defense strategy, Dr. Knapp said, is how much warning a city is likely to get. Sufficiently detailed information again is lacking, he said.

"At the present time the Federal Civil Defense Administration has no operations analysts working on these problems. Civil defense needs this kind of study as much or more than any other department, including the armed forces which have well established operations research groups."

Operations researchers, or "opsearchers," study ways to apply scientific analysis to problems of decision, including those of strategy, a technique that proved extremely effective in World War II.

"What we need to do is plan now for the threat that Russia will pose in two or three years, or U. S. cities will be continually behind in their preparations," he said.

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## PSYCHOLOGY

# Illusions Fool Monkeys

► MONKEYS ARE fooled by some of the same optical illusions that trick the eyes of humans.

To a monkey as well as to a man, up-and-down stripes on a girl's dress make her look taller and more slender than do horizontal stripes. And to a monkey, lights flashing on in rapid succession in an electric sign give the illusion of motion, Dr. Kathryn Ella Dominguez found in experiments conducted in the psychology department of Columbia University.

Girls' dresses and Broadway signs were not actually used in the experiments. An animal, for example, would be trained to reach toward the longer of two lines for a treat of a piece of apple or a peanut.

When he had mastered this lesson, he would be shown a horizontal and a vertical line of equal length. Reaching toward the vertical line showed he was fooled by the illusion.

Dr. Dominguez reports in the *Journal of*

*Genetic Psychology* (Sept.) that she got excellent cooperation from the monkeys. In fact, one year-old Cebus monkey reached for his reward so enthusiastically that he broke up the apparatus and had to be eliminated from the experiment.

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## PSYCHOLOGY

# Urge Solution for "Nestling" Patients

► A SOLUTION to the problem of the military "nestling" patient was presented by Col. Lucio E. Gatto, USAF (MC), director of professional services at the Air Force Hospital, Sampson Air Force Base, N. Y., and Dr. Henry L. Dean of Norristown State Hospital, Pa., at the meeting in Washington of the Association of Military Surgeons of the United States.

The military "nestling" patient is one who, on examination, shows just enough physical or emotional disturbance to induce the military surgeon to send the patient into the hospital for study and treatment.

This patient is inadequate for civilian or military life. His inadequacy and neurotic difficulties existed, however, before he entered military service.

The military, Col. Gatto thinks, should solve the problem of such patients by establishing near a large military hospital an organization where these patients could be actively working and, at the same time, getting such medical and psychiatric attention as they need as outpatients.

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